CLAIM AMENDMENTS

Claims

1. An adapter for [a grinding machine] coupling a source of rotary power to a grinding roller, the adapter comprising:

a grinding shaft sleeve of a cylindrical shape [whose one end is open] having one open end and another end for coupling to a rotary shaft of a power unit, and having at least one through hole formed at a selected position [of] on an outer [circumference] circumferential surface thereof;

a [grinding shaft rotatably and movably fitted] stroke shaft received in said open end of the grinding shaft sleeve, for reciprocating and rotational movement with respect to said grinding shaft sleeve, [the grinding] said stroke shaft including at least one guide groove having a [variable] surface curvature which varies with respect to a shaft direction, the stroke shaft [and] formed at a position corresponding to the through hole of the grinding shaft sleeve, [the grinding roller being installed at one end of the grinding shaft and a rotational force generating unit being installed at the other end of the grinding shaft] and the stroke shaft having one end separably coupled with a drum-shaped grinding roller;

a [grinding shaft stroke] stroke generating unit affixed to said grinding shaft sleeve, said stroke generating unit including a bearing fitted into the guide groove through [whose one end is coupled to] the through hole of the grinding shaft sleeve [and the other end is fitted in the guide groove, for stroking the grinding shaft with the grinding shaft sleeve] such that, when the grinding

shaft sleeve is rotated, said bearing moves along the guide groove while allowing the stroke shaft to reciprocate and rotate with respect to the grinding shaft sleeve;

a sealing means interposed between [an outer circumference of the grinding shaft and the grinding shaft and the] stroke shaft and the grinding shaft sleeve, for preventing leakage of oil; and

a sealing cover [coupled to the grinding shaft stroke unit, for sealing the grinding shaft stroke unit] for sealing an oil passage which extends through the grinding shaft and the closed end of of the stroke shaft.

2. The adapter of claim 1, wherein the [grinding shaft] stroke generating unit comprises:

a [bearing fixing screw] shaft protruding from one end of a male threaded part of the bearing and fitted into the guide groove of the stroke shaft [whose one end is screwed to the through hole of the grinding shaft sleeve and the other end has a bearing shaft]; and

a bearing [inserted into] rotatably mounted on the bearing shaft [when the bearing fixing screw is coupled to the grinding shaft sleeve and rotated within the guide groove of the grinding shaft].

3. The adapter of claim 1, wherein said grinding shaft sleeve comprises a first through- hole and a second through-hole corresponding to the first through-hole [such that a height difference exists between the first through hole and the second through hole] at axially spaced positions on opposite sides of said grinding shaft sleeve.

4. The adapter of claim 1, wherein said [grinding] stroke shaft comprises:

a first guide groove formed at an outer circumference thereof, [corresponding to] and facing the first through-hole [of the grinding shaft sleeve] and having a first surface curvature varied with respect to the shaft direction; and

a second guide groove [spaced apart by a constant interval, corresponding to] facing the second through hole [of the grinding shaft sleeve] and having a second surface curvature which is the same with that of the first guide groove with respect to the shaft direction.

5. The adapter of claim 4, wherein the first surface curvature of the first guide groove [has] is in an opposite direction to the second curvature of the second guide groove.

6. The adapter of claim [1 or claim] 5, wherein, when a variation in the first surface curvature with respect to the shaft direction is defined as R1 and a variation in the second curvature with respect to the shaft direction is defined as R2, R1 is 70 and R2 is 57.1 when the grinding shaft is placed at a rotation angle of 180 degrees and R1 and R2 are 57.8 when the grinding shaft is placed at a rotation angle of 360 degrees.

7. The adapter of claim 1, wherein the guide groove comprises at least one [cam groove] oil introducing through-hole.